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LARGE DOSES OF QUININE.

Analysis of an "Official Report to the Surgeon-General U. S. Army, on the Use of Large Doses of Sulphate of Quinine in Diseases of the South, by John Byrne, M.D., Assistant Surgeon U. S. Army."

[Communicated for the Boston Medical and Surgical Journal.]

DR. BYRNE's experience in the use of large doses of quinine was acquired during a three years' tour of duty in Florida, at a period when the greatest number of troops were operating in the Territory against the Indians, and when diseases of miasmatic origin prevailed very generally and with great severity. During the early part of his service, Dr. B. was stationed at comparatively healthy posts, where fever cases were neither very frequent nor malignant, and the treatment of intermittents and remittents was very similar to that ordinarily pursued at the North, and it was attended by the usual success. At a later period, however, he was in charge of large bodies of men, occupying positions characterized by extreme unhealthiness, and for the last two years of his Florida service his reports of sick range from 15 to 200 daily, exclusive of camp followers, families and citizens.

In individuals who had been but for a short time exposed to the climate of Florida, and in recruits recently arrived from the North, it was remarked that fevers were attended by high arterial action and much disposition to local inflammation; whilst in the older residents of the country, cases of disease were uniformly marked by debility and loss of vital force. In the former, antiphlogistics, diaphoretics, and other preparatory measures, were generally required before the administration of quinine in any form. The latter, on the contrary—by far the greater number—were rarely accompanied by those evidences of diseased secretions so much dilated upon by authors; the tongue was often perfectly clean, and the alvine discharges natural in character and frequency. Here quinine was given at once, and in decided doses; the use of preparatory measures served but to weaken the patient and to protract his recovery.

Imbued with the idea inculcated at the North, that quinine is to be used in intermittents, only after a careful *preparation of the system*, and that in remittents its administration is rarely justifiable under any circumstances, Dr. B. expresses his regret that, in the earlier periods of his southern service, he frequently permitted patients to be worn down with repeated paroxysms of fever rather than have recourse to quinine—because no decided chill or lengthened intermission marked the case as one of intermittent fever. Subsequently he learned the value of quinine in all forms of malarial fever, and had the satisfaction of being able to arrest at once the chain of morbid symptoms, which under the old system of treatment were left to *wear themselves out* by repetition, or to terminate in death.

In intermittents, and remittents of ordinary severity, it is considered as a matter of indifference whether the quinine is given in large or small doses—provided that 10 to 20 grains of the medicine are introduced into the system within a certain number of hours before the expected paroxysm. By a series of experiments instituted with the view of testing the comparative influence of the large and small doses (20 grains and 2 grains) in producing disturbance of the head, it was determined that, in this respect, no difference existed between them, and that the liability to cerebral symptoms depended rather upon the condition of the nervous system, than upon the number of grains administered.

In the severe forms of remittent, however, and particularly in congestive fever, the size of the dose to be given is no longer a matter of choice; here there is no time to introduce the medicine gradually into the system, and if there were time, it is doubtful whether the small doses would produce a sufficiently decided impression upon the disease. It is in *congestive fever* that the value of decided doses of quinine is most strongly marked.

A man, previously in good health, is suddenly stricken down—overpowered by miasmatic poison; he appears insensible—his countenance presents a vacant stare, and he is aroused with difficulty; when questioned as to his condition he insists that there is nothing the matter with him, and begs to be left undisturbed. His extremities are cold, skin elsewhere generally not above the natural temperature, and sometimes covered with a clammy moisture; his breathing is laborious. In accordance with ordinarily received opinions, these symptoms would be ascribed to *congestion* of the internal organs, and free *venesection* the remedy applied. A physician familiar with the use of quinine in Florida, would think and act differently. He would view the case as one of poisoning by malaria, and the congestion—not as the first link in the chain of morbid action—but the mere consequence of the poisonous impression upon the nervous centres. Experience has taught him that the antidote to this poisonous impression is quinine; and accordingly he would order a scruple of the remedy to be given at once, combined with capsicum, laudanum, turpentine or camphor, to be repeated as often as necessary—with warmth, and stimulating frictions to the surface. Under this treatment re-action is established in the course of a few hours, and but little else is required to insure the safety of the patient—the occurrence of another paroxysm being prevented by the amount of quinine already in the system.

What would have been the result in this case if the lancet had been used, and the immediate and decided administration of quinine neglected?

Cases of this kind were not of rare occurrence in Florida, and where quinine was used with a sparing hand they were not unfrequently fatal in a few hours.

Dr. B. rejects entirely the idea that periodical fevers are checked with more ease and certainty on the critical days. At first crises were looked for, and remedies administered in anticipation of their occurrence, without success; but later, when the full powers of quinine were learned, it was considered surer practice, and certainly a more effective one in military service, to cut short the disease at once; and thus the danger was avoided of allowing a quotidian intermittent to run into the remittent form, which in the expectant mode of treatment was often the case. No bad consequences followed this mode of practice, nor in any case were injurious effects perceived from the large doses of quinine administered, and it is asserted that no case of intermittent was encountered in Florida in which, when properly administered, the sulphate of quinine failed to arrest the disease; its permanent cure, however, was only to be effected when the patient was removed from contact with the miasmatic poison. No cases occurred in which the bark, in substance, was found more efficacious than its active principle.

In numerous instances the administration of quinine in moderate doses, combined with calomel and Dover's powder, in chronic dysentery, particularly when this disease was accompanied by fever, was followed by the happiest effects. This circumstance, in connection with the fact that diarrhœa and dysentery invariably prevailed simultaneously with the ordinary forms of miasmatic fever, goes far to confirm the belief in their common origin, particularly in malarial districts. That the habitual free use of quinine increases the tendency to disease of the bowels, of the liver, or spleen, is most strongly doubted; and it is considered that this notion may fairly take its place amongst the obsolete prejudices of times gone by.

In frequent *post-mortem* examinations of cases of chronic dysentery, with repeated attacks of fever—the form of disease which produces most of the deaths in Florida—Dr. B. expresses his surprise that organic alterations of the liver were so rarely encountered. "From the fact that quinine," he remarks, "was so largely used in the Territory, and that I rarely met with diseased livers, enlarged spleens, or dropsy as a consequence of fever, I must acquit this drug of the charge often brought against it of inducing these affections. When they do exist, I am more inclined to attribute them to the depleting means often too liberally employed, to the continued action of malaria, and to the repetition of paroxysms of fever which should have been checked at once. If epidemics show a strong tendency to fasten upon some particular organ, physicians evince an equally strong one to follow their example. Since the days of Abernethy and Philip until lately, the liver has nearly filled up the pathological anatomy of some physicians of our country, and calomel their therapeutics. So often have I seen patients drugged for bilious and liver affections where none existed; and so very rarely have I seen unequivocally diseased livers in dead bodies, that I look with suspicion on those cases so often spoken of under the vague terms of 'hepatic derangements' and 'congested livers.' Nor do I extend to them a greater share of confidence when they are reported in connection with the use of quinine, and asserted to exist as a pretty constant cause, or part, of dysentery. These notions are so much opposed to my own observations, and savor so strongly of the theories prevalent some fifteen or twenty years ago, that I cannot but receive them with many grains of allowance."

With regard to the *modus operandi* of quinine, the evidence of Dr. B. is necessarily of a negative character. Though classed among "tonics" by writers on the materia medica, the idea that its action depends upon tonic or stimulating properties, is a peculiarly unhappy one, for it has prevented its use, no doubt, in many a case of malarial fever which it would have cured with certainty; fever, it is reasoned, is a sthenic condition of the system, and a tonic or stimulant would certainly be inadmissible in it, according to the rules of art. The terms tonic, stimulant, or sedative, convey no just impression of the effects of quinine; its whole force is expended upon the nervous system, and its influence over the circulation is doubtful and uncertain. The effects perceived are those of an anti-periodic, or in more comprehensive phrase, a direct *antidote to the malarial poison*. How this effect is produced, is a question which must remain unanswered. The ultimate action of medicines, like most ultimate causes, thus far lies buried in obscurity, and it is better for us to be aware of our ignorance of the *modus agendi* of quinine, and to be content to use it for the well-known effects which experience has taught us it will produce, than to call it a tonic, stimulant or sedative, terms which involve a false theory, and must lead to erroneous practice.

Surgeon-General's Office, June, 1845.

CASE OF GASTROTOMY.

Read before the Tennessee State Medical Society by Dr. I. E. Manlove, and forwarded, by vote of the Society, for publication in the Boston Med. and Surg. Journal.

On the 7th of July, 1844, I was called to see Alfred, a colored boy, aged 17 years. He complained of some general uneasiness of the abdomen, was laboring under febrile excitement, pulse 110. Learned that he did not recollect having a passage from the bowels in 12 or 15 days. On the 4th had walked several miles to a barbecue, and probably had indulged freely in eating. He had taken Epsom salts and castor oil; also several enemata had been administered by his master. I bled him "*ad deliquium animi*," gave him a general warm bath, and directed 4 grains of calomel and ½ grain of opium every four hours, until three portions should be taken, to be followed by castor oil and spts. turpentine.

8th.—Medicine had been all taken; no evacuation of the bowels; had vomited once, throwing up the medicine. Pulse 120. Bled him, administered a stimulating enema, and directed calomel and opium as on the previous day. Visited him again in the afternoon. Condition found to be the same; no evacuation. Spent the night with him, and made every effort I could to procure evacuation of the bowels, but they all proved ineffectual. Vomited several times during the night. Pulse 120 and feeble. Abdomen tympanitic.

9th.—Dr. Ford was called in consultation. His condition remained the same, except that all the symptoms were now growing more and more alarming, with the certainty that death must speedily ensue without relief. Flexible tubes were introduced as far as possible into the intestines, and stimulating articles were thrown up so as literally to fill the lower bowels. These were all soon thrown off without any appearance of fæces. About 60 grains of tart. antimony were dissolved in water and introduced at two injections, with little or no influence on the general system. An emetic also of ipecac. was administered: emesis was readily produced, but no alteration in the symptoms. Being now night, it was thought advisable to wait on the means which had been used until morning.

10th.—Abdomen enormously distended; difficulty of breathing; extremities cold; pulse very feeble and quick; countenance anxious; no evacuation. Gastrotomy was considered the only possible means of even prolonging his life; and although the operation promised but little benefit, yet the certainty of death without it, justified us, in our estimation at least, in undertaking its performance. An incision was made in the median line, commencing about two inches below the umbilicus, and extending down towards the pubis four or five inches. The peritoneum and bowel along the lower half of the incision had formed a most intimate adhesion, and in cutting through the former an opening of about one fourth of an inch in extent was made into the latter. From the opening there proceeded large quantities of flatus and liquid fæces, as well as the oil and turpentine which had been taken. On further examination, it was discovered that the intestines were united to the peritoneum by extensive adhesions at various points within reach of the finger and probe. The wound was closed by sutures and adhesive straps, except the opening into the intestine. The amendment in all the symptoms in one hour was astonishing; the extremities became warm, the pulse slower and fuller, and during the morning he was able to fan himself, the weather being excessively warm. On the next day his appetite was good, and he continued to improve and to discharge the contents of the bowels through the artificial anus until the 17th day after the operation, when the bowels acted naturally, the opening having nearly closed.

It will be proper to state, that about six months before his present illness, the boy received an injury from the falling of a piece of timber on the abdomen. The hurt caused him to keep his bed several weeks, and hence, no doubt, the adhesions which were discovered in the operation. The boy is now well (nine months after the operation), and is present for the inspection of the members of the Society.

That there was mechanical obstruction of a serious nature in this case, cannot be doubted; but it is a matter of much difficulty to determine its character. The opinion to which we incline is, that it was dependent on the retarded peristaltic motion of the intestines, which was the effect of the adhesions formed between the peritoneum and the bowels. Now we think it probable that from inattention to the regular evacuation of the intestinal canal, to imprudence in diet, or some other similar cause, accumulations of fæces may have taken place about the point of greatest adhesion, and the already retarded peristaltic action forming the still greater accumulation of matter, until the bowel was forced to bend on itself, forming a barrier which no ordinary means could overcome. This supposition is favored by the long-continued constipation under which the patient had labored, as well as by the result of the operation. It will be observed that passages, per "vias naturalis," did not take place for seventeen days, in which time it is probable that the accumulation was removed through the artificial opening, by being gradually dissolved and discharged, and as soon as that was effected to a sufficient extent, the bowels acted naturally. It is, however, of not so much importance to know the exact condition in this case, as to deduce inferences from it which may, perhaps, bear on cases hereafter to be treated.

The medical books abound with the detail of cases of obstructed bowels, and no doubt many of us have met with such in practice, in which all the remedies have been used in regular gradation, from the mildest laxative to the most drastic purgative, with all the other cathartic means, and the patients have died without an evacuation from the bowels. And the concurrent testimony of the faculty has tended to the conviction that in this condition nothing more should be done than has been done—that a respite from remedies should be allowed for the "settlement of worldly concerns and for the preparation of the spirit against the inevitable hour."

We would consider such a case not only justifying, but loudly calling for the interference of surgery. An operation which would discharge the contents of the bowels above the obstructed point, through an artificial anus, would tend to postpone the fatal hour, and perchance place the unhappy patient in that condition in which the powers of the system might restore him to health. Back to the earliest date of surgery may be traced the fear of peritoneal inflammation, as good and sufficient reason against the performance of the operation of gastrotomy. And we would hazard the suggestion that that fear has been proved by facts, belonging to this age, to be, if not groundless, at least stripped of much of its terror. We would not be understood to say that an artificial anus should be made in every case of gastrotomy—but only in those where the obstruction cannot be relieved by a change in the position of the intestinal tube. The necessity for opening the intestine should be judged of after the incision has been made in the abdomen and the cause of obstruction examined.

In reading, lately, the detail of the case of Hon. H. S. Legare, we were forcibly struck with its almost exact description in many points with Alfred's case, at the head of this paper. In cases of torsion, as well as of intussusception of the bowels, we would with deference suggest the propriety of the operation of gastrotomy, to relieve the cause of mechanical obstruction, as affording the only means of saving the patient's life—and respectfully as we would consider the fear of peritoneal inflammation, we do not deem it of so much importance as the inevitable death of the patient without the operation. In the operation for strangulated hernia the peritoneum is wounded; and if it be performed skilfully and soon enough, the danger of peritoneal inflammation is not considered a prominent feature in the case. Desault says that a patient should never be lost on whom the operation is performed before the taxis is used. The chief difficulty in such cases would be to determine the point of time when ordinary remedies will be of no further avail, and still organic lesion has not advanced too far to preclude the possibility of relief by operation. And we say, with Hey, that we might often regret that the operation is performed too late, but seldom that it is performed too early.

In support of these views, as far as one instance will go, we will here mention a case which may possibly be brought before the Society in another form. Our respected friend, Dr. Wilson, of this county, was called to attend, in conjunction with several others, a negro man who was supposed to be laboring under intussusception. All remedies had been used to procure evacuation of the bowels which ingenuity could suggest, but in vain; and the patient was reduced to the last point of life. Gastrotomy was determined to be the only means of affording relief. It was performed by Dr. W., and the intestines drawn out of the cavity of the abdomen until the point of obstruction was arrived at. About one inch of the ileum was found to be invaginated; and the attempt to relieve the intussuscepted portion, discovered the fact that adhesions had been formed between the receiving and received parts of the intestine. The adhesions were dissected loose, and the bowels returned into the abdomen. Natural passages immediately took place, and the patient was rapidly restored to perfect health. It is not unreasonable to suppose the chances of recovery would have been much enhanced, had the operation been performed before the adhesions were established.

If the chief dread in gastrotomy, in such cases, be peritonitis, it may be removed somewhat by the reflection that that disease is combated successfully every day by the well-established means which we all have at hand. And if it supervene after an operation, may not the same means be successful? And when we consider the importance of the operation, as affording the only chance of recovery to the patient, we may surely conclude that it is the smaller of two evils, and justifiable in its adoption. We have but little doubt that experience will show that this operation may be performed with as little danger to the patient, and with as great prospect of relief, as that of lithotomy, and many others equally important. It is apparent, however, that the success of the operation depends much on the time of its performance. If delayed until disorganization of the intestinal tube is established, failure will await us almost inevitably. If performed sufficiently early, we would expect to be successful oftener than otherwise.

[The above case is the one alluded to, with some inaccuracies, in the No. of this Journal for Aug. 21, 1844. The present report has been promptly forwarded by Dr. C. K. Winston, Secretary of the Society.]

SKETCH OF AN ENDEMIC TYPHOID FEVER WHICH OCCURRED IN DRYDEN, TOMPKINS CO., N. Y.

[Communicated for the Boston Medical and Surgical Journal.]

Epidemic and endemic fevers have been the great scourge of this country. Their malignancy has consigned youth and the middle aged particularly to a premature grave. What has been said of consumption applies also to fever, that it preys not on the thorns and brambles of this wilderness, but on the rose and passion flower of human excellence and gentleness. The endemic, now to be described, broke out about the middle of July, 1842. There were about eighty cases within and near the village from that time until the first of November, when it began to abate. Cases of it, however, continued to recur for the two succeeding years. Twelve, among those first attacked, terminated fatally. This disease probably arose from marsh miasmata, as the village is surrounded by low, wet land, which was covered with decaying trees, stumps, and other vegetable matter. There was also a mill dam erected about a mile from it the year previous, and much land partially overflowed. The stream which passes through the village is very slow, and was obstructed in many places by flood wood. Intermittents formerly prevailed here, and we have the opinion of the illustrious Armstrong that marsh miasmata is the primary source of typhus. It is probable that the fever was not propagated by contagion. Those who nursed the sick in the village were generally attacked, but on being conveyed to their homes they did not infect others. Members of the same family were too often attacked simultaneously for us to suppose that it was communicated from one to another.

Symptoms.—I will pass over those common to continued fever, and confine myself mostly to those peculiarities which might, perhaps, distinguish this endemic from an equal number of other cases of continued fever as it commonly appears. The tongue was either coated and preternaturally red at the edges, or clean with this appearance over its whole surface. After pressure the color quickly returned in it. There was an uneasy sensation of the bowels, producing an impression on the mind of the patient that there was something in them which should be removed. This sensation was, however, increased by active cathartics, as was tympanitis, which often occurred. Diarrhœa was common, and the bowels, in all cases, were very easily moved. Profuse hemorrhage from the bowels was frequent. In most cases there was slight cough. In some instances there were symptoms of local disease of the brain or some other vital organ. The morning remissions and evening exacerbations were strongly marked. Pulse usually 120. In the advanced stages delirium, subsultus tendinum and involuntary discharges from the bowels, occasionally took place.

Post-mortem Appearances.—These showed marks of inflammation of the mucous membrane of the small intestines, and ulcerations from the size of a grain of wheat to that of a sixpence. These in some instances had produced perforations through other coats of the bowels. In one case the pericardium was lined with coagulable lymph, and the surface of the heart was much denuded.

Treatment.—It was found that the treatment with emetics and repeated drastic cathartics was very unsuccessful. Most of the fatal cases occurred under this practice. The physician who would attack this form of fever indiscriminately with such means, might display heroic practice; but, like other heroes, he would destroy life. It was rare that a patient could withstand both inflammation of the mucous membrane, and the exterminating attack made on it. At the commencement, however, if the stomach was oppressed with undigested food, an emetic of ipecac. was beneficial; so, also, if there was a loaded state of the bowels, a blue pill or teaspoonful of castor oil was indicated. But, as a general rule, it was found best to keep the bowels open with laxative enemas only. I shall confine myself to an account of the remedies used in the successful cases. Bloodletting in the stage of excitement was often a safe measure, from its tendency to prevent inflammation. When this took place early, venesection was of course indispensable. A very small portion of blood from the arm made an impression. Cups on the abdomen were used. During the forming stage, the warm bath appeared to do good. This remedy was useful during protracted convalescence attended with a dry skin and wakefulness. When the skin was hot and dry, in the stage of excitement, sponging with cool water, and cool injections into the bowels, were useful. Drinks were lemonade and ice water. During the active stage, spirits of Mindereri, diluted with water, was used as a febrifuge. Morphine in small doses, to allay irritation and check diarrhœa. Stimulants in the latter stages, under symptoms of prostration. Sinapisms were applied to abdomen. I. S. Briggs, M.D.

Dryden, N. Y., July 14th, 1845.

LIQUID COMPOUND OF IODINE AND MORPHIA.

To the Editor of the Boston Medical and Surgical Journal.

Dear Sir,—After I first became acquainted with the powers of iodine, complications of disease were constantly occurring in my practice, which led me to feel the necessity of a formula for a liquid compound of iodine and opium. After having searched my library in vain for such a formula, I devised, and have since used, the one which, with your permission, I will now give to your readers.

I will here premise by saying that I keep constantly on hand, as a basis to the preparation I am about to suggest, and also as a basis to various other preparations which I use, a solution of iodine, which is essentially one of Lugol's formulæ, and the merits of which are, that is an *aqueous* solution, and that it will keep any length of time. The proportions are as follows. R. Iodine, ℈i.; hydriodate of potash, ℈ij.; soft water, f℥i. Dissolve. My formula is the following. R. Of the above, fʒi.; sulphate of morphia, gr. i.; alcohol, fʒiv.; soft water, warm, fʒiii. First dissolve the morphia in the water, then add the alcohol, and, lastly, add the solution of iodine. Dose for a child two years old, from eight to sixteen drops, three times a-day. For an adult, forty drops.

This formula was devised with especial reference to children, who bear larger doses of iodine and smaller doses of opium in proportion than adults. But I have found it to answer so well for adults that I use almost exclusively these proportions in preference to any other.

It is needless for me to give a detail of the particular cases to which this is applicable. They will suggest themselves to every judicious practitioner. I will mention, however, chronic dysentery, chronic diarrhœa, mesenteric diseases of children, and scrofulous diseases generally, where there is considerable nervous irritation or looseness of the bowels.

I have used this preparation in my practice for about two years, and know it to be one of great value. It is very uniform in its operation in those cases where it seems to be applicable. I believe every practitioner who tries it will like it.

Whatever the explanation may be, the sulphate of morphia given in this combination has a less unfavorable effect upon the head than the same quantity given alone, unless I have been deceived in my observations.

It will be seen that one fluidounce of this preparation contains one fluidrachm of Lugol's strong solution and one grain of morphia. With these proportions the liquid is perfectly transparent, and remains so when mingled with water for exhibition. But the proportions of iodine and morphia can be varied only to a somewhat limited extent without producing decomposition. However, where it is desirable to use a greater proportion of morphia, two grains may be used instead of one, in the formula, and a corresponding dose given. Perhaps this last is the best formula in chronic dysentery.

In cases of scrofulous disease, attended with great debility and a general atonic condition of the system, I have added to the formula sixteen drops of sulphuric acid with advantage. SAMUEL TAYLOR.

Petersham, Ms., July 8th, 1845.

HARE-LIP AMONG NEGROES.

To the Editor of the Boston Medical and Surgical Journal.

SIR,—I notice, in the two last Nos. of the Journal, inquiries on the subject of hare-lip among the blacks—as if it were a question whether they are liable to that affection. All I know of that matter is that we have, in our village, an African, of unmixed blood, James Duffie, or Durfie, who exhibits the worst (best?) specimen of terrible deformity of that sort I ever saw. The upper lip diverges the entire width of the mouth, which is capacious, and the divergence is continuous with a *gap* in the upper jaw, of like liberal proportions, and a cleft in the palate, for aught I know, to the occiput. 'Tis a frightful chasm, anyhow, and the man who explores it will be entitled to the thanks of the profession.

St. Albans, Vt., July 12th, 1845. Yours respectfully,

J. L. CHANDLER, M.D.

OBSERVATIONS ON MONARDIN,

A PECULIAR CRYSTALLINE SUBSTANCE, DERIVED FROM THE VOLATILE OIL OF MONARDA PUNCTATA.

By William Procter, Jr.

THE volatile oil of horsemint (*Monarda punctata*) is extensively employed in this country as a rubefacient, either by itself, or in conjunction with other substances, in the form of liniments, and from its great pungency is considered a valuable remedial agent. Several of our druggists have observed in some specimens of this oil, a crystalline deposit, analogous in appearance to camphor, and possessed of the taste and odor of the oil. As no notice has been taken of this fact in any of the works to which I have had access, the subject is possessed of sufficient interest to present, in the form of an essay, a history of its sensible properties, and some of its chemical characteristics. It evidently belongs to the camphor class, and may be the result of the absorption of oxygen. It is presented in two forms; one in amorphous translucent masses with some slight evidences of lamination in the fracture; the other in rhombic crystals closely aggregated together. The amorphous variety is white, has a conchoidal fracture, is very friable, and is reduced to powder with extreme readiness. Its amorphous condition appears to be due more to the manner in which it is deposited, than to any difference in its chemical character, as when fused, and gradually cooled, it assumes the crystalline form, and comports itself in the same manner with chemical reagents. This substance, which, for the purpose of facilitating its description, may be called *monardin*, possesses the burning, pungent taste, and peculiar odor of the oil of horsemint, and doubtless possesses the same medical properties. Monardin is very soluble in alcohol and ether, and is dissolved by the fixed and volatile oils, particularly oil of turpentine; hence the change of the oil of horsemint to the solid state, does not preclude its use in pharmaceutical preparations. It is very slightly soluble in water, communicating to that fluid its odor and pungent taste. Monardin fuses at 118° Fahr. into a limpid oil, and when the heat is continued it commences boiling in a glass vessel at 418° Fahr., and at 438° its point of ebullition is stationary. It boils readily and without discoloration, and may be distilled *per se* without change, the vapor condensing in a crystalline form if the receiver be kept cool. Fused monardin may be cooled down below 70° without solidifying, but if the smallest crystal of the substance be dropped in it, crystallization commences, and is propagated throughout in a few minutes. The usual crystalline form of monardin is the rhombohedron, or some form derivable from it. By cooling a portion of fused monardin until crystallization is partially effected, and then pouring off the superstratum, it is obtained in very regular crystals. The sp. grav. of the amorphous variety is 1.03. When in crystals the enclosed air renders them lighter than water. It is neutral to test paper.

Monardin is soluble in a solution of caustic potassa, and by saturating the alkali with acetic acid it separates in the form of an oil, which, by standing, assumes the same crystalline form, and possesses the same odor as before subjection to the alkaline menstruum.

When crystals of monardin are placed in a solution of ammonia they gradually assume the form of oily globules, without dissolving in the ammoniacal liquid, and remain at the bottom. Whilst undergoing this change they have the appearance of fusing. The globules of monardin, after treating with ammonia, solidify when subjected to a temperature as low as 18° Fahr. By exposure to the air these globules gradually assume a purple color, and when heated with caustic potassa no ammonia is evolved.

When crystallized monardin is introduced into a jar of ammoniacal gas over mercury, the ammonia is rapidly absorbed, and the crystals are liquified. When suffered to remain until saturated, they absorb nearly one hundred times their bulk of the gas, and are increased in bulk more than 50 per cent. When the liquified monardin is exposed to the air, it gradually assumes the crystalline form apparently unchanged. Oil of horsemint also absorbs ammonia, but not by any means in so great a quantity, or with any marked phenomena.

Monardin dissolves in cold concentrated sulphuric acid, to which it communicates a red tinge. The solution may be diluted and saturated with an alkali without the separation of any oily or crystalline matter, evidently proving that the monardin is changed.

Concentrated hydrochloric acid appears to have little, if any, action on this substance, either cold or hot; when it is treated with cold, strong nitric acid, it is rapidly decomposed with the evolution of much deutoxide of nitrogen and the production of heat—after the action ceases, a thick yellowish-brown mass remains, without any appearance of crystallization.

Having obtained a bottle of ol. monardæ, in which the monardin was in process of being deposited in crystals, the latter were separated from the superstratum of oil, and were found to possess the same properties as the other specimens previously examined. When this oil was subjected for some time to a temperature of 18° Fahr., a considerable quantity of similar crystals of monardin were deposited. The oil thus rid of most of the monardin was placed in an atmosphere of oxygen with the view of ascertaining if this principle was the result of the action of atmospheric oxygen upon it; but after forty-eight hours' exposure, no evidence was obtained of the formation of that substance, although the experiment was not continued sufficiently long to settle the question.

The particular circumstances favorable to the formation of monardin, and its separation from oil of horsemint, are as yet quite obscure. I have known this volatile oil to be kept for many years without any evidence of a deposit, while in another and a recent instance, about a quart of the oil was taken from a large bottle in which no change had occurred, and in a few hours after, a crystalline deposition had taken place in the portion removed, weighing several ounces. In all the instances where this deposit has taken place, the source of the oil was undoubted, having been obtained from the distillers in New Jersey. A careful, ultimate analysis of the oil, and of the deposit, would do much to throw light on this subject.—*American Journal of Pharmacy.*

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON, JULY 23, 1845.

Science of Ethnography in America.—Last week's Journal bore the names of two American physicians, whose destiny, in the future annals of science, cannot be estimated. They have certainly laid a foundation that will sustain their present reputation for profound philosophical research, in all coming ages. None of the modern savans of Europe have accomplished so much, unaided by the exchequer of Government. Without aiming to establish theories, the former have simply taken the testimony of nature herself, and now, resting from their first labors, ask the world to deny, if it can be done, the great truths in ethnography, which they have brought to light. On several occasions, we have endeavored to hold up to the admiration of our countrymen, the learned achievements of these members of the medical profession. We now wish to call the attention of our readers to the claims of another, by no means unknown to fame, who actually gave the first impulse, in America, to a department of science, so admirably cultivated in this republic. That individual is Geo. R. Gliddon, Esq., late American Consul in Egypt. With a far-seeing eye, he toiled among the colossal monuments of the Nile, which had their origin in an undefined antiquity, according to the general opinion of travellers, till Champollion and his followers decyphered their incriptions, and determined, with unerring certainty, the entire history of that portion of the world. Mr. Gliddon foresaw the immense advantages accruing to exact science, in possessing the men themselves, who raised Ancient Egypt from the quarries—and he actually succeeded in the bold, original design of transporting the heads of Nilotic denizens, slaves and strangers, who had reposed in tombs, undisturbed by the avaricious hand of later ages, since the days of Abraham. Nay, farther still—for some of the skulls are so old as to defy the severest scrutiny into their origin, locality, or the race to which they belonged. How extraordinary is all this! The mortal remains of some of the identical individuals who may have conceived the idea, or indeed actually fabricated, the tombs, temples and gigantic obelisks that may endure till the elements shall melt with fervent heat, at this moment constitute the private cabinet of a Philadelphia physician!

The idea of decyphering the annals of our race by studying the character of the skull, as successfully conducted by the modern school of ethnographical philosophers, if it did not wholly originate with Mr. Gliddon, through his boldness and energy was at once presented to the consideration of the world, approved and adopted. This very circumstance obliged Dr. Prichard to issue an appendix to his celebrated Natural History of Man, the present year, that he might not appear ignorant of the progress of discovery; nay, more, that he might not be the laughing stock of Europe and America, in being all of one thousand years in the rear of that knowledge with which he fain would have us suppose he was familiar. In the *Revue de L'Orient*, of February last, may be found the details of the *Séance du 10 Janvier*, which is particularly curious. Mr. Gliddon is made to say things that he never uttered.—"*M. Horeau fait un rapport verbal sur une brochure de M. Gliddon, intitulée Appel aux antiquaires de l'Europe. Dans cet écrit, M. Gliddon s'élève contre les demolisseurs des monumens égyptiens, et contre ceux qui ont fait construire avec leurs debris des casernes et des fabriques. Il signale les consuls qui trafiquent des antiquités égyptiennes.*" At page 183, the transactions of the meeting are continued. But it is the fate of men like Mr. Gliddon, who strike out into deep water, beyond the soundings of ordinary people, to be misrepresented as well as misconstrued; yet genius and perseverance triumph over all obstacles, and ultimately gain that applause due to merit. It will be universally admitted by antiquarians, philologists and scholars generally, that Mr. G. has laid them all under obligations by the impulse he has given to a comparatively new science—one that unlocks the iron chests of reputed fabulous times, and reduces to a certainty the phases and epochs of civilization and the arts, so far back that the mind is hardly prepared to embrace such vast periods.

Among historians, the problem of the first settlement of this continent has by no means been satisfactorily solved. There have been several races of men here, long before the Indians made their advent. Like Egypt, too, the valley of the Mississippi presents the hugest mementoes of human physical agency. The tumuli of the West are enduring evidences of the perseverance, skill, mechanical adroitness, and untiring efforts of a people so long extinct, that their name, origin, language, and the story of their disappearance, are now lost to inquiry. But like the builders of the pyramids, their bones are found entombed in the great ruins that still rear themselves heavenward in many parts of the North, and all through Central America.

Medical gentlemen usually take pleasure in cultivating all the sciences, aside from their ordinary pursuits. This acknowledged circumstance induces us to urge those on the borders of the great lakes and rivers, where these striking and puzzling structures mostly abound, to collect *mound skulls*--as many as possible—because the interesting question, of who were the primitive inhabitants of America, must be fathomed through their agency or not all. The national type is the first point to be established—and with a cabinet of ancient skulls, thousands of which may yet be excavated, in a very tolerable condition, as much may be accomplished illustrative of early ages in the New World, as Mr. Gliddon, with the heads collected by him, has done for trodden-down Egypt. With this object prominently in view, the physicians in all the new States have it in their power, by so doing, to enlarge the circle of ethnographical and philological discovery—and to secure for themselves individually, as well as for their country, the gratitude of the learned throughout the world.

South Carolina Medical College.—A class of 196 was in attendance at the last term of this College, and 73 were graduated. Jacob King, of Newbury, S. C., was complimented with an honorary degree of medicine. A committee of medical gentlemen unanimously recommended to the faculty to publish the thesis entitled *Sympathies of the System*, by Dr. Fitch, of Columbia, on account of its decided merit. This institution is one of growing importance, and has already established a reputation that is appreciated wherever the names of the professors are known. The next term opens on the second Monday in November. We recommend those students who have irritable lungs to defend from the approaches of November winds, to go and pursue their studies through the winter in the mild climate of Charleston.

Use of the Blowpipe.—Messrs. Ticknor & Co. have brought out a neat edition of a work in octavo, on the use of this instrument in chemistry and mineralogy, by the distinguished J. J. Berzelius, translated from the fourth enlarged edition, by J. D. Whitney. Although the book seems, by its title page, to be exclusively on one topic, the fact is, a delightful treatise exhibits itself, in the sequel, which would be prized by all intelligent persons, even were they not special chemists or mineralogists. A taste for such pursuits, which give tone to the character of a community, should be encouraged by all who have at heart the diffusion of that knowledge which both refines and improves the condition of men.

Modern Medical Books.—Messrs. Ticknor & Co., of Boston, have issued a catalogue of all the new productions on medicine and the collateral sciences, which will be found a convenient remembrancer and guide in making purchases. If publishers would make one more useful advance, and append the price of their books, it would subserve an important purpose. One likes to know what an article is to cost, in a country where economy is a virtue.

Medical Remembrancer.—Some practitioner of New York has revised and improved Shaw's little popular book, called "*The Medical Remembrancer, or book of emergencies, in which are concisely pointed out the immediate remedies to be adopted in the first moments of danger, from poisoning, wounds, &c. &c.*" It is full of useful hints and memoranda, put forth in an humble, unpretending dress. We do not consider it an indispensable treatise, yet an extremely convenient one and calculated for nonprofessional people. May the world become wiser with the unceasing efforts of philanthropists to make it so.

American Translators of Chinese.—It must be viewed as a curious circumstance that the British Government at this moment are employing two natives of the United States, to translate all the public documents issued by the Celestials, of importance to be known. One is Dr. Peter Parker, and the other Mr. Bridgeman, both sent out by the American Foreign Missionary Society. We intend to examine the subject of the capacity of our countrymen to acquire languages, whenever the statistics of the Missionary service have been more thoroughly investigated.

Cotton Mattresses and Hare-lip.—To the Editor.—Dear Sir,—I had intended to address you upon the subjects of cotton mattresses and hare-lips, but I find that another Dr. C. has forestalled me. As, however, my experience upon both matters is diametrically opposed to his, I give it for what it may be worth. I have seen cotton mattresses used to a great extent, and the result of my observation is that they become hard and lumpy very soon—the cotton not comparing with the hair for elasticity. They also absorb moisture and filth more readily, and are not so benefited and purified by a hot sun, as a hair mattress is. Why they should be cool I cannot see, nor does my experience induce me to believe they are.

With regard to hare-lip amongst the colored races, the worst case I ever saw was in a negro child—born of parents as near approaching to full-blooded negroes as probably any in the United States. The nose wanted the septum, and had upon the extremity of it a tubercle—the rudimentary alveola—along the most projecting part of which ran a little slip of true skin. The upper lip extended only from the angle of the mouth to the junction of the alæ of the nose with the face, in the centre of which was an irregular aperture, bounded inferiorly by the lower lip, superiorly by the nose, wanting its septum, and surmounted by the above-mentioned tubercle, and laterally by the edges of the rudimentary upper lip. The bony part of the tubercle I cut away with bone nippers. Out of the cartilaginous part and the slip of skin I made a septum for the nose. With a common thumb-lancet, but perfectly new and sharp, I transfixed the perpendicular edge of the upper lip, and cutting downwards took off a thin sliver from each side. With some straining the raw edges were brought together, and confined by two of the usual figure-of-8 sutures. Perfect union took place by the first intention, and the appearance of the sable infant now even surpasses the hopes of its anxious mother and fond father, whilst the cleft in the palate, becoming narrower, in due time will in all probability be in a condition to be closed by another operation. I would ask the attention of surgeons to the excellence of the familiar instrument above named for the purpose to which I applied it, using it in preference to the dozen knives and scissors devised especially for the operation—and feeling more gratified at having made a simple and humble thumb-lancet serve such a purpose, than I should have been in inventing a complex instrument. ANOTHER C.

Boston, July, 1845.

Dr. A. B. Edmonds, of Navarino, N. Y., under date of July 16, also writes as follows on the hare-lip question. I have not, he says, "seen thousands of negroes" in the slave and free States, my observations having been mostly confined to the State of New York; and until to-day, yes, until within ten minutes, I should not have been able to answer this question as I now do, for there has just stepped into my *sanctum* a lady of color, aged about 30 years—or, in other words, a large, greasy, fat *wench*—who has a double hare-lip, together, I think, with fissure of the palate. Of this fissure of the palate, however, I do not know by any other evidence than that of her voice, as the weather is very warm, and I did not approach her near enough to make an examination into the mouth. This woman was reared, I understand, about four miles from this place, and removed recently to within one and a half miles from me. I have frequently heard her spoken of.

Last Sickness of Prof. Portal, of Sicily.—The following is an extract from a note received a few days since from the brother of the late celebrated Portal, whose death was announced some months ago. We have also received a concise memoir of his life, which will have insertion whenever translated. The letter was dated Palermo, April 3, 1845.

To the Editor, &c.—I received, by Captain Morante, your letter of the 19th of November last, in which you make inquiries of some particulars concerning the premature death of my poor brother. I thank you for your kind intention. Happy he to whom the gods have granted the favor of doing something worthy of being written, or of writing something worthy of being read; but happier he who has received at once both these favors. Such has been the good fortune of my brother. I execute then with eagerness your orders on a subject which I intended to have spoken to you about.

He died the first of October, 1843, in a country town named Vittoria, about 90 miles from Palermo. When he set out from Palermo, in the month of September, he was a little indisposed. On his arrival at Vittoria he fell sick of the ague, which afflicted him a whole month; afterwards it became more dangerous, for it changed into a gastric fever, which in a few days caused his death. He was regretted by his beloved family, and all those persons who knew him by scientific acquaintance; the lovers of the science to which he was devoted, and the immense number of scholars who had been instructed in surgery by him, were deeply penetrated with grief.

My sister-in-law thanks you sincerely for the noble sentiments expressed in your kind letter to her, on the irreparable loss of her dear husband. If you would like to have some articles concerning Roman and Sicilian medals, ancient vases, mineral productions of Mount Etna and other parts of this Island, let her know your intention, that she may send them to you as a remembrance of friendship.

New Hampshire Insane Hospital.—Dr. Chandler, the efficient and popular Medical Superintendent of this institution, who has held the office from its commencement, has resigned. The Trustees will probably appoint a successor as soon as a candidate of suitable qualifications presents. We examined the establishment, located at Concord, the capital of the State, last week, and feel prepared to say, that to be the medical manager of that charity is to have a very desirable position.

Medicine in Siam.—Formerly there has been but little demand for Dr. Bradley's labors in the families of any of the nobles (says a missionary letter), but of late there has been a change which not a little encourages us. Some months since, the head priest of the P'raklang's wat, after suffering a long time with the fever and ague, consented to take quinine, and in a day or two was well. Soon after this, Chau Fa, the priest, having been afflicted in the same way for a long time, and having heard of the above-mentioned cure, consented also to try the quinine; not, however, till he had first proved its virtues in the case of a servant of his. With him, also, the medicine was perfectly successful. Since that time Dr. B. has frequently been called to attend upon the sick in high places. One of the princes of high rank, who but a few months since would not have ventured to take medicine from the foreign doctor, without first requiring one of his servants to take a dose to prove that it contained no poison, now takes it without hesitation directly from the hand of Dr. B., and has even gone so far as to take it while sitting in his boat in front of our dispensary. Some months since, Dr. B. was called to operate for cataract on the eye of a nobleman, who is at the head of the agricultural interests of the kingdom, and equal in rank with the P'raklang. Notwithstanding he is 73 years old, the operation was completely successful. He has evinced his gratitude by a great variety of presents. At one time he sent fifty pails of rice, and a hundred pails of paddy at another. This, at the price rice was bringing at that time, would amount to sixty dollars, and in a time of great scarcity of rice has been of no little service to our hospital.

Cause of Diabetes. By L. Mialhe.—It is known that in a healthy state animals may feed on sugar, gum, &c., without any appearance whatsoever of these substances in the urine or other secretions; but in the disease called diabetes, this kind of food appears to undergo little or no change, and the urine is found to contain more or less sugar, or a substance resembling gum. The result of the present experiments has been to show that hydrocarbonaceous food, such as grape sugar, gum, starch, &c., does not undergo assimilation until the alkalies of the blood have transformed them into a peculiar substance, the nature of which has not yet been examined; if, however, this transformation does not take place, they undergo no change, and are excreted by the kidneys. The reason why saccharine and farinaceous matter does not undergo the requisite change in the diabetic patient, is explained as follows: individuals suffering under diabetes do not perspire, or but very slightly; as the secretions of the skin are acid, it follows that when they are suppressed, the presence in the blood of free alkalies or their carbonates becomes impossible, being neutralized by the acids not excreted; consequently the saccharine matter used as food cannot undergo the *change necessary* prior to its assimilation, and the kidneys endeavor to disembarrass the blood of what is now foreign and noxious. This fact suggests, as the curative means for diabetes, diaphoretics and alkaline preparations.—*Ann. de Chim. et de Phys., Sept.* 1844.

Typhoid Fever in Missouri.—In a letter to the editors, dated June 2d, Dr. Z. T. Robards, of Grand Pass, Missouri, mentions the prevalence of a fatal fever in his neighborhood during the past winter. Some of the facts communicated will be found interesting. He says:—

"It may not be improper to remark that a typhoid fever prevailed in the vicinity of Jefferson city during the last winter, which has proved unusually fatal. The characteristic symptoms are those of typhus gravior; the patient appears much in the condition of one intoxicated from ardent spirits even from the beginning. The patients complained of acute pain at the junction of the occiput and atlas, which was much increased upon the slightest rotation of the head from side to side. In a *post-mortem* examintion which I witnessed, there was matter found at the base of the brain, and commencement of the spinal column, beneath the tunica arachnoides. There were likewise symptoms of inflammation in the serous tissues of the abdomen generally. In this disease, the pulse fails upon withdrawing the smallest amount of blood. My only object in mentioning this fact is to ascertain if any analogy exists between this and the epidemic reported to be prevailing in your vicinity. Some of the cases were attended with severe diurnal rigors or chills, and terminated fatally on the third day of the attack. I have been informed that they presented the same appearances on *post-mortem* examination which have been mentioned.—*Western Medical Journal.*

Sanity and Insanity.—Mr. Barlow well observes, "Should my position, that the difference between sanity and insanity consists in the self-control exercised, appear paradoxical to any one, let him note for a short time the thoughts that pass through his mind, and the feelings that agitate him; and he will find that, were they all expressed and indulged, they would be as wild, and perhaps as frightful in their consequences, as those of any madman. But the man of strong mind represses them, and seeks fresh impressions from without, if he finds that aid needful; the man of weak mind yields to them, and then he is insane."

Medical Miscellany.—Dr. Franklin Cannon has been appointed register of the land office, at Jackson, Missouri.—An epidemic erysipelas is prevailing in different sections of Ohio, and in some places the mortality by it is appalling. It is usually called the black tongue.—One hundred and thirty deaths occurred in Philadelphia, week before last. Cholera infantum is quite prevalent there. Ten cases of *coup de soleil* have also occurred in the same city.—Dr. Buckminster Brown left in the steamer last Wednesday, with a view to visiting all the orthopœdic institutions of Europe.—Mrs. Marshall, of Silver Lake Township, Penn., on the 22d ult., had four living children at one birth—all daughters, and doing well. She is but 26 years of age, and is already the mother of eleven children!—The smallpox has appeared at Cabotville, Mass.—The character and treatment of epidemic erysipelas was the subject of Dr. Stiles's dissertation before the Orange County (Vt.) Medical Society, the 19th of June. The discussion and dissertation both sustained the utility of local treatment by blisters, &c., and venesection in the cold stage; also the extreme danger of communicating the disease, by the physician, in his attendance in parturition.—Dr. Bartlett, for 27 years post-master of Lee, Mass.. has been removed.—A case of smallpox has appeared at Westfield, Mass.—The new lunatic asylum in New Jersey is soon to be commenced at Erving, near Trenton.

To Correspondents.—A paper on inflammation and spasms, and one on mortification from calomel, have been received.

Married,—Charles Cockran, M.D., of Sandusky City, Ohio, to Miss S. V. Norris.—At Scottsboro', Georgia, John H. Furman, M.D., to Miss C. E. Carter.

Died.—At Willoughby Cottage, Chippeway, Dr. Myles Burke, a native of Galway, Ireland, 46.

Number of deaths in Boston, for the week ending July 19, 64—Males, 34; Females, 30. Stillborn, 8. Of consumption, 6—old age, 2—drinking cold water, 2—disease of the heart, 1—convulsions, 3—dropsy on the brain, 5—teething, 2—typhus fever, 2—disease of the bowels, 6—scarlet fever, 2—cholera infantum, 5—hooping cough, 2—debility, 1—infantile, 5—cancer, 1—apoplexy, 2—disease of the brain, 1—lung fever, 1—inflammation of the bowels, 2—croup, 1—cholera morbus, 1—inanition, 1—marasmus, 1—chronic disease, 1—child-bed, 2—dysentery, 1—dropsy, 1—disease of the spine, 1—delirium tremens, 1—scrofula, 1.

Under 5 years, 39—between 5 and 20 years, 2—between 20 and 60 years, 17—over 60 years, 6.

On Pettenkofer's New Test for Bile. By Dr. W. J. Griffith.—The test proposed by M. Pettenkofer is an exceedingly valuable one, and when applied in conjunction with that of the well-known reaction of acids on the coloring matter, will serve to supply what has hitherto been a desideratum, viz., a ready means of recognizing the peculiar biliary and the coloring matters in animal fluids. In a case of jaundice, which I had an opportunity of examining, the urine was of a golden-yellow color, slightly albuminous, and not containing more than the ordinary proportion of other ingredients: on the addition of nitric acid, the green and red tints were well-marked, the former exceedingly intense; but on applying the sulphuric acid and syrup as recommended, and adopting the requisite precautions, not the slightest evidence of the presence of the choleic acid could be obtained, nor on analysis by the ordinary methods was I more successful; I therefore consider this a well-marked example (and I have since found another) wherein the biliary coloring matter only was separated with the urine. In examining a number of healthy urines, with a view to test the validity of this purple color with the acid syrup, I was occasionally much perplexed by finding on the addition of the acid alone, that the urine assumed a reddish-purple color, closely resembling the characteristic one, and the subsequent addition of the syrup produced no alteration, thus rendering the test apparently inapplicable. This alteration arises from the action of the acid on the coloring matter of the urine, and may always be distinguished from the true test-color by allowing the mixture to repose; the choleic purple is permanent, whilst the other is gradually changed to a brown color. The experimenter will find that where the bile is in very small quantity, a considerable excess of acid will frequently detect it when a smaller quantity will not; the syrup, however, must be added in very small quantity.—*Chemical Gazette.*

Bromine and Iodine.—Prof. W. W. Mather, at Athens, Ohio, writes under date of Jan. 20, 1845—"I have found bromine and iodine in the bittern of the salt springs of this vicinity. They are not very abundant, but by improved methods of extraction, I can supply any demand for bromine or its common combinations; I can supply it as cheap as any one. I have extracted bromine pure, and formed various compounds with it, as bromide of iodine, hydrobromic acid, hydrobromates of potassa and soda, bromates of potassa, soda and of lime."

We with pleasure record this fact, and can add that we have received similar statements from Pittsburgh, in Pennsylvania, and other places in the west.—*American Journal of Sciences and Arts.*

Xanthic Oxide in Guano. (Chem. Gazette, Aug. 1844, p. 363.)—M. Unger has discovered the presence of this substance in guano. Treat the guano with hydrochloric acid, precipitate with caustic potash, which redissolves a small portion of the precipitate (the oxide in question); to separate it from the potash, all that is necessary to do is to pass a current of carbonic acid through the solution, or by the addition of hydrochlorate of ammonia, when it deposits as the ammonia evaporates.—*Ibid.*